

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P 03 004 WO		FOR FURTHER ACTION		See Form PCT/PEPA/416
International application No. PCT/DK2004/000070		International filing date (day/month/year) 03.02.2004	Priority date (day/month/year) 03.02.2003	
International Patent Classification (IPC) or national classification and IPC A61G7/10				
Applicant GRAMKOW, Asger ET AL.				
<p>1. This report is the International preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 8 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 6 sheets, as follows:</p> <p style="margin-left: 20px;"><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p style="margin-left: 20px;"><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand 03.12.2004		Date of completion of this report 02.06.2005		
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tlx 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer Camez, C Telephone No. +31 70 340-3434		



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Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

Description, Pages

1-23 as originally filed

Claims, Numbers

1-30 filed with telefax on 17.05.2005

Drawings, Sheets

1/11-11/11 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-30
	No: Claims	
Inventive step (IS)	Yes: Claims	1-30
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-30
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

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Re Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following document:

D3: US-A-4 375 840 (CAMPBELL JACK L) 8 March 1983 (1983-03-08)

- 2.1 The document D3, which is considered to represent the most relevant state of the art discloses (see column 3, lines 24 to 44, column 4, lines 9 to 28, and lines 59 to 67, column 5, lines 8 to 13, and lines 18 to 20, figures; the references in parentheses applying to this document): a

- 2.1.1 Handling system (10) *for lifting and/or moving a person from a first position to another*, said system comprising

a frame including a base frame (12) and a lifting frame (74) being part of a lifting device *for said person*,

at least three wheels (22, 38) positioned in different parts of said base frame and *allowing the handling system to be moved over a surface from said first position to another*, each of said wheels (22, 38) are mounted pivotally around a vertical axle for said wheels (see figure 7);

at least one user interface (see column 4, lines 59 to 67) *allowing said person or another person to control the handling system*

at least one of said wheels (38) is directional controllable from said at least one user interface (see column 3, lines 34 to 39, and column 4, lines 59 to 67), from a first wheel position to a second wheel position (column 3, lines 34 to 39, and column 4, lines 59 to 63), wherein the angle of direction of said at least one wheel is respectively nil and 90 degrees (column 3, lines 34 to 39) in relation to a forward direction of said handling system.

- 2.1.2 From this disclosure, the subject-matter of claim 1 differs in that there is a direct change of wheel position from nil to 90 degrees.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

- 2.1.3 The problem to be solved by the present application may therefore be regarded as providing a more secure and reliable handling system (i.e. preventing the system from tipping over by swinging motions).

- 2.1.4 The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:
by defining only two directions of movement with a direct change carried out between said two restricted directions of movement, the handling system can react in a steadier and more secure manner during motion.

- 2.1.5 Hence, the subject-matter of claim 1 involves an inventive step and meets the requirements of Article 33(3) PCT.

- 2.2 Concerning claim 14, document D3 is also regarded as being the closest prior art and discloses (see column 3, lines 24 to 44, column 4, lines 9 to 28, and lines 59 to 67, column 5, lines 8 to 13, and lines 18 to 20, figures; the references in parentheses applying to this document): a

- 2.2.1 User interface (see column 4, lines 59 to 67) *for handling a system, according to any of the preceding claims, for lifting and/or moving a person from a first position to another, wherein*

said user interface comprises control means (see column 4, lines 59 to 67) capable of converting the handling of said interface by said person or another person to directly (46, 38) or indirectly (22) control of the direction of each of the wheels (22, 38) of said handling system.

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- 2.2.2 From this disclosure, the subject-matter of claim 14 differs in that said interface controls the angle of direction of each of the wheels with a direct change of wheel position from nil to 90 degrees in relation to a forward direction of said handling system by pivoting the wheels around a vertical axle for said wheels.

The subject-matter of claim 14 is therefore new (Article 33(2) PCT).

- 2.2.3 The problem to be solved by the present application may therefore be regarded, as already mentioned in paragraph 2.1.3 above (for claim 1), as providing a more secure and reliable handling system (i.e. preventing the system from tipping over by swinging motions).

- 2.2.4 The solution to this problem proposed in claim 14 of the present application is considered as involving an inventive step (Article 33(3) PCT for the same reasons as mentioned in paragraph 2.1.4 above.

- 2.2.5 Hence, the subject-matter of claim 14 involves an inventive step and meets the requirements of Article 33(3) PCT.

- 2.3 Concerning method claim 21, document D3 is again regarded as being the closest prior art and discloses (see column 3, lines 24 to 44, column 4, lines 9 to 28, and lines 59 to 67, column 5, lines 8 to 13, and lines 18 to 20, figures; the references in parentheses applying to this document): a

- 2.3.1 Method of handling a person by lifting and moving the person from a first position to another, with a handling system including at least one user interface (column 4 lines 59 to 67), said method comprises the following steps: lifting the person by a lifting device (74) of said handling system, and moving the person in said handling system, and directly or indirectly controlling the direction of each of the wheels (22, 38) of said handling system by said at least one user interface, the control being performed by the person being handled or an assistant (column 4 lines 59 to 67).

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- 2.3.2 From this disclosure, the subject-matter of claim 21 differs in that the direction of at least one wheel is controlled with a direct change of wheel position from nil to 90 degrees in relation to a forward direction of said handling system.

The subject-matter of claim 21 is therefore new (Article 33(2) PCT).

- 2.3.3 The problem to be solved by the present application may therefore be regarded, as already mentioned in paragraph 2.1.3 above (for claim 1), as providing a more secure and reliable handling system (i.e. preventing the system from tipping over by swinging motions).

- 2.3.4 The solution to this problem proposed in claim 21 of the present application is considered as involving an inventive step (Article 33(3) PCT for the same reasons as mentioned in paragraph 2.1.4 above.

- 2.3.5 Hence, the subject-matter of claim 21 involves an inventive step and meets the requirements of Article 33(3) PCT.

- 2.4 Claims 2 to 13, 15 to 20, 22 to 30 are dependent on claims 1, 14 or 21 and as such, also meet the requirements of the PCT with respect to novelty and inventive step.

3. The devices and methods described in claims 1 to 30 are industrially applicable and therefore meet the requirements of article 33(4) PCT.

Re Item VIII

Certain observations on the international application (Article 6 PCT)

1. Claim 1 is not clear in that it makes reference to "the angle of direction of said at least one wheel", while said angle of direction is not previously defined in the claim. However, for the present international preliminary examination report, said angle of direction has been interpreted as corresponding to said first and second wheel position previously defined in the claim (namely: "at least one of said wheels is directional controllable from said at least one user interface, from a first wheel position to a second wheel position").

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2. The same unclarity applies to claim 14.
3. With the wording: "in which the control is performed by the person being handled or an assistant" in claim 21, it is not clear to which part of the system said technical features relate.
4. Claim 17 is not clear in that it makes reference to a "direction of approximately nil or 90 degrees", while said claim is dependent on claim 14 which itself clearly states a "direct change of wheel position from nil to 90 degrees". There is therefore an inconsistency between claim 17 and claim 14.

Patent Claims

1. Handling system (1) for lifting and moving a person from a first position to another, said system comprising
- 5 a frame including a base frame (2a, 2b, 5, 18a, 18b) and a lifting frame (7) being part of a lifting device for said person,
- at least three wheels (3a, 3b, 4a, 4b) positioned in different parts of said base frame and allowing the handling system to be moved over a surface from said
- 10 first position to another, each of said wheels (3a, 3b, 4a, 4b) are mounted pivotally around a vertical axle (va1) for said wheels
- at least one user interface (27-34) allowing said person or another person to control the handling system (1),
- 15 at least one of said wheels (3a, 3b) is directional controllable from said at least one user interface from a first wheel position to a second wheel position,
- characterised in that
- 20 the angle of direction of said at least one wheel (3a, 3b) is respectively nil and 90 degrees in relation to a forward direction of said handling system (1), with a direct change of wheel position from nil to 90 degrees.
- 25 2. Handling system (1) according to claim 1 characterised in that the angle of direction of said at least one wheel (3a, 3b) is exactly 0 and 90 degrees, respectively.
- 30 3. Handling system (1) according to claim 1 or 2 characterised in that the direction of any of said wheels are directly controlled.

4. Handling system (1) according to claim 1 or 2 characterised in that some of said wheels (3a, 3b) are directly controlled wheels and some wheels (4a, 4b) are free directional wheels.
- 5 5. Handling system (1) according to claim 4 characterised in that said free directional wheels (4a, 4b) are controlled by the movement of said system.
- 10 6. Handling system (1) according to any of the claims 1 to 5 characterised in that said system (1) comprises at least two free directional wheels (4a, 4b) and at least one directional controlled wheel (3a, 3b) such as the two rear wheels of the system.
- 15 7. Handling system (1) according to any of the claims 1 to 6 characterised in that the system is directionally controlled by at least one controller (13) controlling the direction of said directional controlled wheels (3a, 3b).
- 20 8. Handling system (1) according to claim 7 characterised in that said controller (13) is connected to said directional controlled wheels by rods, electric actuators or similar connection arms.
- 25 9. Handling system (1) according to any of the claims 1 to 8 characterised in that at least one controller (12) controls the width horizontally between the right and left base frame parts (2a, 2b) by pivoting said parts around vertical axes (va2) for said parts.
- 30 10. Handling system (1) according to any of the claims 7 to 9 characterised in that said controllers (12, 13) is wire or wireless connected to said user interface (27-34) e.g. including a control device (27).

11. Handling system (1) according to any of the claims 1 to 10 characterised in that said user interface includes control means (33) such as computer means and storage means comprising predefined motor control data or ramps for controlling said at least one electric motor (14a, 14b).
12. Handling system (1) according to any of the claims 1 to 11 characterised in that said user interface includes communication means e.g. for communicating system or person data.
13. Handling system (1) according to any of the claims 1 to 12 characterised in that at least one electric motor (14a, 14b) is connected to at least one of said wheels (3a, 3b).
14. User interface for a handling system (1) according to any of claims 1 to 13 for lifting and/or moving a person from a first position to another, said user interface (27-34) comprises control means capable of converting the handling of said interface by said person or another person to directly or indirectly control of the direction of each of the wheels (3a, 3b, 4a, 4b) of said handling system characterised in that said interface (27-34) controls the angle of direction of each of the wheels (3a, 3b, 4a, 4b) with a direct change of wheel position from nil to 90 degrees in relation to a forward direction of said handling system (1) by pivoting the wheels around a vertical axle for said wheels (val).
15. User interface according to claim 14 characterised in that said user interface further controls the power directed to one or more of the wheels in response to the handling by said person or another person.

16. User interface according to claim 14 or 15 characterised in that a control device (27, 34) of said user interface includes at least one joystick or similar control stick.

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17. User interface according to any of the claims 14 to 16 characterised in that one or more buttons (31) converts said control device (27, 34) from a status of substantially forward movement to a sideways movement by a direction of approximately nil degrees or 90 degrees in relation to a forward direction of said handling system (1).

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18. User interface according to any of the claims 14 to 17 characterised in that control means (33, 34) includes computer means and storage means comprising predefined motor control data or ramps.

15

19. User interface according to any of the claims 14 to 18 characterised in that said control means (33, 34) includes communication means e.g. for communicating system or person data.

20

20. User interface according to any of the claims 14 to 19 characterised in that said interface (27 to 34) controls a controller (13) to control the direction of said directional controlled wheels by pivoting the wheels around a vertical axle for said wheels and a controller (12) to control the width horizontally between the right and left base frame parts of said handling system by pivoting said parts around vertical axes for said parts.

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21. Method of handling a person by lifting and moving the person from a first position to another, with a handling system including at least one user interface, said method comprises the following steps:

30

lifting the person by a lifting device of said handling system,

moving the person in said handling system, and

- 5 directly or indirectly controlling the direction of each of the wheels of said handling system by said at least one user interface where the direction of at least one wheel is controlled with a direct change of wheel position from nil to 90 degrees in relation to a forward direction of said handling system (1),

in which the control is performed by the person being handled or an assistant.

- 10 22. Method of handling a person according to claim 21 characterised in that said movement is achieved by powering one or more of the wheels of the system with one or more electric motors connected to said one or more wheels.
- 15 23. Method of handling a person according to claim 22 characterised in that the direction of said at least one wheel is exactly 0 and 90 degrees, respectively.
- 20 24. Method of handling a person according to any of the claims 21 to 23 characterised in that the handling of said interface by said person or another person directly or indirectly controls the direction of each of the wheels of said handling system by pivoting the wheels around a vertical axle for said wheels.
- 25 25. Method of handling a person according to any of the claims 21 to 24 characterised in that said handling controls the power directed to one or more of the electric motors connected to said wheels.
- 30 26. Method of handling a person according to claim 25 characterised in that said at least one electric motor is controlled by a control device of said user interface includes at least one joystick or similar control stick.

27. Method of handling a person according to claim 25 or 26 characterised in that said at least one electric motor is controlled by said user interface including computer means and storage means comprising predefined motor control data or ramps.
- 5
28. Method of handling a person according to any of claims 21 to 27 characterised in that at least one controller (13) controls the direction of said directional controlled wheels (3a, 3b).
- 10
29. Method of handling a person according to claim 28 characterised in that said controller (13) controls said directional controlled wheels by rods, electric actuators or similar connection arms.
- 15
30. Method of handling a person according to any of claims 21 to 29 characterised in that at least one controller (12) controls the width horizontally between the right and left base frame parts of said handling system by pivoting said parts around vertical axles for said parts.